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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/814,185

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Masashi Murakami

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WENDEROTH, LIND & PONACK, L.L.P.

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EXAMINER

DURNFORD GESZVAIN, DILLON

ART UNIT

PAPER NUMBER

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DELIVERY MODE

10/02/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/814,185	<b>Applicant(s)</b> MURAKAMI ET AL.	
	<b>Examiner</b> Dillon Durnford-Geszvain	<b>Art Unit</b> 2622	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 June 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 8,9,13 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,10-12,14-16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Species II in the reply filed on 6/27/2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims **8, 9, 13** and **17** are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 6/27/2008.

### ***Drawings***

3. Figures 1, 2A, 2B and 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the circuitry for

performing the logic between the held selection signal and a drive signal (as claimed in claim 1) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2622

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims **1**, **2**, **19** and **20** are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,512,543 (Kuroda).

7. As to claim **1**, Kuroda teaches an image sensor comprising:

a sensor unit 31 (Fig. 1) that is made up of a plurality of pixels 32;

a scanning circuit 36 having a dynamic logic circuit for outputting selection signals that select pixels from among said plurality of pixels in the sensor unit (C6 L26-45); and

a bootstrap circuit 40 placed between the scanning circuit and the sensor unit, for holding a selection signal outputted from the scanning circuit during one horizontal scanning period, and outputting, to the sensor unit, an AND signal obtained by performing a logical AND between the held selection signal and a drive signal that specifies a timing to output the AND signal to the sensor unit (C6 L26-45 and C7 L31-33).

8. As to claim **2**, see the rejection of claim **1** and note that Kuroda further teaches the image sensor according to claim **1**, wherein the drive signal is for electronic shutter use (C6 L42-45).

9. Claim **19** is a method that corresponds to the apparatus of claim **1** and is rejected on similar grounds.

Art Unit: 2622

10. Claim **20** is a camera that corresponds to the apparatus of claim **1** and is rejected on similar grounds.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims **3-7, 11, 12, 15** and **16** are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,512,543 (Kuroda) in view of US 6,271,685 (Nagasawa).

13. As to claim **3**, see the rejection of claim **2** and note that although Kuroda teaches that the transistor 40 may be replaced by a bootstrap circuit (C7 L31-33), it does not teach a specific implementation for the bootstrap circuit.

However, Nagasawa teaches an implementation of a bootstrap circuit with a switch T1 (Fig. 1) connected to a signal line;

a boosting transistor T2 for holding a signal in a gate capacitor (C3 L40-47); and a capacitive element C<sub>B</sub> for boosting a gate voltage in the boosting transistor T2.

Therefore because Kuroda teaches that the transistor 40 may be replaced with it a bootstrap circuit it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the transistor 40 with the bootstrap circuit of Nagasawa which would have yielded predictable results.

14. As to claim **4**, see the rejection of claim **3** and note that Kuroda in view of Nagasawa further teaches the image sensor according to claim **3**,

wherein said selection signal outputted from the scanning circuit is at a high level during one horizontal scanning period even while the gate capacitor holds said selection signal (Fig. 2 of Kuroda).

15. As to claim **5**, see the rejection of claim **4** and note that Kuroda in view of Nagasawa further teaches the image sensor according to claim **4**,

wherein the scanning circuit outputs said selection signal at high level during said one horizontal scanning period by use of a drive pulse that is at high level during said one horizontal scanning period (Fig. 2).

16. As to claim **6**, see the rejection of claim **5** and note that Kuroda in view of Nagasawa further teaches the image sensor according to claim **5**,

wherein the switch is a switching transistor, and a threshold of the gate voltage to turn on the switching transistor is smaller than a threshold of the gate voltage to turn on the boosting transistor (C3 L40-47).

17. As to claim **7**, see the rejection of claim **6** and note that Kuroda in view of Nagasawa further teaches the image sensor according to claim **6**,

wherein the switch transmits said selection signal to the gate of the boosting transistor when said switch is turned on at a time when one horizontal scanning period

Art Unit: 2622

shifts to another horizontal scanning period (Note that this would be taught by the combination of Fig. 2 of Kuroda and the bootstrap circuit of Nagasawa).

18. As to claim **11**, see the rejection of claim **4** and note that Kuroda in view of Nagasawa further teaches the image sensor of claim **4**,

wherein the switch transmits said selection signal to the gate of the boosting transistor when said switch is turned on at a time when one horizontal scanning period shifts to another horizontal scanning period (See Fig. 2 of Kuroda).

19. As to claim **12**, see the rejection of claim **4** and note that Kuroda in view of Nagasawa further teaches the image sensor of claim **4**,

wherein the scanning circuit outputs the selection signal as a pulse having an arbitrary width within said one horizontal scanning period, by use of a drive pulse having said arbitrary width (See Fig. 2 of Kuroda).

20. As to claim **15**, see the rejection of claim **3** and note that Kuroda in view of Nagasawa further teaches the image sensor of claim **3**,

wherein the switch is a switching transistor, and a threshold of the gate voltage to turn on the switching transistor is smaller than a threshold of the gate voltage to turn on the boosting transistor (C3 L40-47).



Art Unit: 2622

21. As to claim **16**, see the rejection of claim **3** and note that Kuroda in view of Nagasawa further teaches the image sensor according to claim **3**,

wherein the switch transmits said selection signal to the gate of the boosting transistor when said switch is turned on at a time when one horizontal scanning period shifts to another horizontal scanning period (Note that this would be taught by the combination of Fig. 2 of Kuroda and the bootstrap circuit of Nagasawa).

22. Claims **14** and **18** are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,512,543 (Kuroda) in view of US 6,271,685 (Nagasawa) further in view of US 6,369,853 (Merrill).

23. As to claim **14**, see the rejection of claim **4** and note that neither Kuroda nor Nagasawa teaches a capacitive element as a gate capacitor of an enhancement-typed transistor in which drain and source are short circuited. However, Merrill teaches a capacitive element 186 made by shorting the source and drain of a transistor (C8 L56-68). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the storage capacitor transistor 186 instead of the capacitor  $C_B$  as this would allow for the entire circuit to be made using MOS fabrication techniques which would make the circuit easier to fabricate.

24. Claim **18** is similar to claim **14** but depends from claim **3** instead of claim **4** and is rejected on similar grounds.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dillon Durnford-Geszvain whose telephone number is (571)272-2829. The examiner can normally be reached on Monday through Friday 8 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dillon Durnford-Geszvain

9/28/2008

/David L. Ometz/  
Supervisory Patent Examiner, Art Unit 2622